

AM100788P1

SEQUENCE LISTING

<110> WYETH HOLDING CORPORATION.; KUNZ, ARTHUR ET AL.

<120> CALICHEAMICIN DERIVATIVE-CARRIER CONJUGATES

<160> 51

<170> SeqWin99, version 1.02

<210> 1

<211> 5

<212> PRT

<213> mouse

<220>

<223> 5/44g CDR-H1

<220>

<221>

<400> 1

Asn Tyr Trp Ile His

1 5

<210> 2

<211> 17

<212> PRT

<213> mouse

<220>

<223> mouse monoclonal 5/44 CDR-H2gL1 T3

<220>

<221>

AM100788P1

<400> 2

Gly Ile Asn Pro Gly Asn Asn Tyr Thr Thr Tyr Lys Arg Asn Leu Lys

1 5 10 15

Gly

<210> 3

<211> 12

<212> PRT

<213> mouse

<220>

<223> mouse monoclonal 5/44 CDR-H3

<220>

<221>

<400> 3

Glu Gly Tyr Gly Asn Tyr Gly Ala Trp Phe Ala Tyr

1 5 10

<210> 4

<211> 16

<212> PRT

<213> mouse

<220>

<223> mouse monoclonal 5/44 CDR-L1

<220>

<221>

<400> 4

Arg Ser Ser Gln Ser Leu Ala Asn Ser Tyr Gly Asn Thr Phe Leu Ser

1 5 10 15

AM100788P1

<210> 5

<211> 7

<212> PRT

<213> mouse

<220>

<223> mouse monoclonal 5/44 CDR-L2

<220>

<221>

<400> 5

Gly Ile Ser Asn Arg Phe Ser

1 5

<210> 6

<211> 9

<212> PRT

<213> mouse

<220>

<223> mouse monoclonal 5/44CDR-L3

<220>

<221>

<400> 6

Leu Gln Gly Thr His Gln Pro Tyr Thr

1 5

<210> 7

<211> 113

<212> PRT

<213> mouse

AM100788P1

<220>

<223> mouse monoclonal 5/44g VL domain

<220>

<221>

<400> 7

Asp Val Val Val Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Phe Gly

1 5 10 15

Asp Gln Val Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Ala Asn Ser

20 25 30

Tyr Gly Asn Thr Phe Leu Ser Trp Tyr Leu His Lys Pro Gly Gln Ser

35 40 45

Pro Gln Leu Leu Ile Tyr Gly Ile Ser Asn Arg Phe Ser Gly Val Pro

50 55 60

Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile

65 70 75 80

Ser Thr Ile Lys Pro Glu Asp Leu Gly Met Tyr Tyr Cys Leu Gln Gly

85 90 95

Thr His Gln Pro Tyr Thr Phe Gly Gly Thr Lys Leu Glu Ile Lys

100 105 110

Arg

<210> 8

<211> 121

<212> PRT

<213> mouse monoclonal 5/44 VH domain

<220>

AM100788P1

<223> mouse monoclonal 5/44 VH domain

<220>

<221>

<400> 8

Glu Val Gln Leu Gln Gln Ser Gly Thr Val Leu Ala Arg Pro Gly Ala

1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Arg Phe Thr Asn Tyr

20 25 30

Trp Ile His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile

35 40 45

Gly Gly Ile Asn Pro Gly Asn Asn Tyr Thr Thr Tyr Lys Arg Asn Leu

50 55 60

Lys Gly Lys Ala Thr Leu Thr Ala Val Thr Ser Ala Ser Thr Ala Tyr

65 70 75 80

Met Asp Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys

85 90 95

Thr Arg Glu Gly Tyr Gly Asn Tyr Gly Ala Trp Phe Ala Tyr Trp Gly

100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser

115 120

<210> 9

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> cH

AM100788P1

<220>

<221>

<400> 9

Gly Asn Asn Tyr Thr Thr Tyr Lys Arg Asn Leu Lys Gly

1 5 10

<210> 10

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> N55Q

<220>

<221>

<400> 10

Gly Asn Gln Tyr Thr Thr Tyr Lys Arg Asn Leu Lys Gly

1 5 10

<210> 11

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> T57A

<220>

<221>

<400> 11

Gly Asn Asn Tyr Ala Thr Tyr Lys Arg Asn Leu Lys Gly

1 5 10

AM100788P1

<210> 12

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> T57V

<220>

<221>

<400> 12

Gly Asn Asn Tyr Val Thr Tyr Lys Arg Asn Leu Lys Gly

1 5 10

<210> 13

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR-H2 (T57)A H'

<220>

<221>

<400> 13

Gly Ile Asn Pro Gly Asn Asn Tyr Ala Thr Tyr Lys Arg Asn Leu Lys

1 5 10 15

Gly

<210> 14

<211> 13

<212> PRT

AM100788P1

<213> Artificial Sequence

<220>

<223> K60R

<220>

<221>

<400> 14

Gly Asn Asn Tyr Thr Thr Tyr Arg Arg Asn Leu Lys Gly

1 5 10

<210> 15

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR-H2 (K60R)R H"

<220>

<221>

<400> 15

Gly Ile Asn Pro Gly Asn Asn Tyr Thr Thr Tyr Arg Arg Asn Leu Lys

1 5 10 15

Gly

<210> 16

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR-H2 (T57A K60R) H"

AM100788P1

<220>

<221>

<400> 16

Gly Ile Asn Pro Gly Asn Asn Tyr Ala Thr Tyr Arg Arg Asn Leu Lys

1 5 10 15

Gly

<210> 17

<211> 70

<212> PRT

<213> Homo sapien

<220>

<223> DPK9

<220>

<221>

<400> 17

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly

1 5 10 15

Asp Arg Val Thr Ile Thr Cys Trp Tyr Gln Gln Lys Pro Gly Lys Ala

20 25 30

Pro Lys Leu Leu Ile Tyr Gly Val Pro Ser Arg Phe Ser Gly Ser Gly

35 40 45

Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp

50 55 60

Phe Ala Thr Tyr Tyr Cys

65 70

AM100788P1

<210> 18

<211> 11

<212> PRT

<213> Homo sapiens

<220>

<223> JK1

<220>

<221>

<400> 18

Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg

1 5 10

<210> 19

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> gL1

<220>

<221>

<400> 19

Asp Val Gln Val Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly

1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ser Ser Gln Ser Leu Ala Asn Ser

20 25 30

Tyr Gly Asn Thr Phe Leu Ser Trp Tyr Leu His Lys Pro Gly Lys Ala

35 40 45

Pro Gln Leu Leu Ile Tyr Gly Ile Ser Asn Arg Phe Ser Gly Val Pro

AM100788P1

50 55 60

Asp Arg Phe Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile

65 70 75 80

Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln Gly

85 90 95

Thr His Gln Pro Tyr Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys

100 105 110

Arg

<210> 20

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> gL2

<220>

<221>

<400> 20

Asp Val Val Val Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly

1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ser Ser Gln Ser Leu Ala Asn Ser

20 25 30

Tyr Gly Asn Thr Phe Leu Ser Trp Tyr Leu His Lys Pro Gly Lys Ala

35 40 45

Pro Gln Leu Leu Ile Tyr Gly Ile Ser Asn Arg Phe Ser Gly Val Pro

50 55 60

AM100788P1

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile

65 70 75 80

Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln Gly

85 90 95

Thr His Gln Pro Tyr Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys

100 105 110

Arg

<210> 21

<211> 80

<212> PRT

<213> Homo sapiens

<220>

<223> DP7

<220>

<221>

<400> 21

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala

1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Trp Val

20 25 30

Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Lys Phe Gln Gly

35 40 45

Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr Met Glu

50 55 60

AM100788P1

Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg

65 70 75 80

<210> 22

<211> 11

<212> PRT

<213> Homo sapiens

<220>

<223> JH4

<220>

<221>

<400> 22

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser

1 5 10

<210> 23

<211> 121

<212> PRT

<213> Artificial Sequence

<220>

<223> gH1

<220>

<221>

<400> 23

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala

1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Arg Phe Thr Asn Tyr

20 25 30

AM100788P1

Trp Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile

35 40 45

Gly Gly Ile Asn Pro Gly Asn Gln Tyr Thr Thr Tyr Lys Arg Asn Leu

50 55 60

Lys Gly Arg Ala Thr Leu Thr Ala Asp Thr Ser Thr Ser Thr Val Tyr

65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys

85 90 95

Thr Arg Glu Gly Tyr Gly Asn Tyr Gly Ala Trp Phe Ala Tyr Trp Gly

100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser

115 120

<210> 24

<211> 121

<212> PRT

<213> Artificial Sequence

<220>

<223> gH4

<220>

<221>

<400> 24

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala

1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Arg Phe Thr Asn Tyr

20 25 30

Trp Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile

AM100788P1

35 40 45

Gly Gly Ile Asn Pro Gly Asn Asn Tyr Ala Thr Tyr Arg Arg Asn Leu

50 55 60

Lys Gly Arg Ala Thr Leu Thr Ala Asp Thr Ser Thr Ser Thr Val Tyr

65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys

85 90 95

Thr Arg Glu Gly Tyr Gly Asn Tyr Gly Ala Trp Phe Ala Tyr Trp Gly

100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser

115 120

<210> 25

<211> 121

<212> PRT

<213> Artificial Sequence

<220>

<223> gH5

<220>

<221>

<400> 25

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala

1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Arg Phe Thr Asn Tyr

20 25 30

Trp Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile

35 40 45

AM100788P1

Gly Gly Ile Asn Pro Gly Asn Asn Tyr Ala Thr Tyr Arg Arg Asn Leu

50 55 60

Lys Gly Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser Thr Val Tyr

65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys

85 90 95

Thr Arg Glu Gly Tyr Gly Asn Tyr Gly Ala Trp Phe Ala Tyr Trp Gly

100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser

115 120

<210> 26

<211> 121

<212> PRT

<213> Artificial Sequence

<220>

<223> gH6

<220>

<221>

<400> 26

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala

1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Arg Phe Thr Asn Tyr

20 25 30

Trp Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile

35 40 45

AM100788P1

Gly Gly Ile Asn Pro Gly Asn Asn Tyr Ala Thr Tyr Arg Arg Lys Phe

50 55 60

Gln Gly Arg Ala Thr Leu Thr Ala Asp Thr Ser Thr Ser Thr Val Tyr

65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys

85 90 95

Thr Arg Glu Gly Tyr Gly Asn Tyr Gly Ala Trp Phe Ala Tyr Trp Gly

100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser

115 120

<210> 27

<211> 121

<212> PRT

<213> Artificial Sequence

<220>

<223> gH7

<220>

<221>

<400> 27

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala

1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Arg Phe Thr Asn Tyr

20 25 30

Trp Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile

35 40 45

Gly Gly Ile Asn Pro Gly Asn Asn Tyr Ala Thr Tyr Arg Arg Lys Phe

AM100788P1

50 55 60

Gln Gly Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser Thr Val Tyr

65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys

85 90 95

Thr Arg Glu Gly Tyr Gly Asn Tyr Gly Ala Trp Phe Ala Tyr Trp Gly

100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser

115 120

<210> 28

<211> 239

<212> PRT

<213> Artificial Sequence

<220>

<223> Full sequence of grafted light chain

<220>

<221>

<400> 28

Met Lys Leu Pro Val Arg Leu Leu Val Leu Leu Phe Trp Ile Pro

1 5 10 15

Ala Ser Arg Gly Asp Val Gln Val Thr Gln Ser Pro Ser Ser Leu Ser

20 25 30

Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ser Ser Gln Ser

35 40 45

Leu Ala Asn Ser Tyr Gly Asn Thr Phe Leu Ser Trp Tyr Leu His Lys

50 55 60

AM100788P1

Pro Gly Lys Ala Pro Gln Leu Leu Ile Tyr Gly Ile Ser Asn Arg Phe

65 70 75 80

Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe

85 90 95

Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr

100 105 110

Cys Leu Gln Gly Thr His Gln Pro Tyr Thr Phe Gly Gln Gly Thr Lys

115 120 125

Val Glu Ile Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro

130 135 140

Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu

145 150 155 160

Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp

165 170 175

Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp

180 185 190

Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys

195 200 205

Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln

210 215 220

Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys

225 230 235

<210> 29

<211> 781

<212> DNA

AM100788P1

<213> Artificial Sequence

<220>

<223> Full sequence of grafted light chain

<220>

<221>

<400> 29

ttcgaagccg ccaccatgaa gttgcctgtt aggctgtgg tgcttctgtt gttctggatt 60
cctgcttccc ggggtgacgt tcaagtgacc cagagccat ccagcctgag cgcatctgta 120
ggagaccggg tcaccatcac ttgttagatcc agtcagagtc ttgcaaacag ttatggaaac 180
accttttgt ctggtatct gcacaaacca ggttaaagccc cacaattgct catctacgga 240
atctctaaca gattnatgtgg tgtaccagac aggttcagcg gttccggaag tggtaactgat 300
ttcacccctca cgatctcgtc tctccagcca gaagattcg ccacttattt ctgttacaa 360
ggtacacatc agccgtacac attcggtcag ggtactaaag tagaaatcaa acgtacggta 420
gcggcccccatttcttcat ctcccccca tctgatgagc agttgaaatc tggaaactgcc 480
tctgttgttgcctgctgaa taacttctat cccagagagg ccaaagtaca gtgaaagggt 540
gataacgccc tccaatcggg taactcccaag gagagtgtca cagagcagga cagcaaggac 600
agcacctaca gcctcagcag caccctgacg ctgagcaaag cagactacga gaaacacaaa 660
gtctacgcct gcgaagtcac ccatcaggccttctgatgacg ccgtcacaaa gagctcaac 720
aggggagagt gtttagaggga gaagtgcggc cacctgctcc tcagttccag cctggaaatt 780

c 781

<210> 30

<211> 467

<212> PRT

<213> Artificial Sequence

<220>

<223> Full sequence of grafted heavy chain

<220>

<221>

<400> 30

Met Asp Phe Gly Phe Ser Leu Val Phe Leu Ala Leu Ile Leu Lys Gly

AM100788P1

1 5 10 15

Val Gln Cys Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys

20 25 30

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Arg Phe

35 40 45

Thr Asn Tyr Trp Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu

50 55 60

Glu Trp Ile Gly Gly Ile Asn Pro Gly Asn Asn Tyr Ala Thr Tyr Arg

65 70 75 80

Arg Lys Phe Gln Gly Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser

85 90 95

Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val

100 105 110

Tyr Tyr Cys Thr Arg Glu Gly Tyr Gly Asn Tyr Gly Ala Trp Phe Ala

115 120 125

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys

130 135 140

Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu

145 150 155 160

Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro

165 170 175

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr

180 185 190

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val

195 200 205

AM100788P1

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn

210 215 220

Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser

225 230 235 240

Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly

245 250 255

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met

260 265 270

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln

275 280 285

Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val

290 295 300

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr

305 310 315 320

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly

325 330 335

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile

340 345 350

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val

355 360 365

Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser

370 375 380

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu

385 390 395 400

AM100788P1

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro

405 410 415

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val

420 425 430

Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met

435 440 445

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser

450 455 460

Leu Gly Lys

465

<210> 31

<211> 2160

<212> DNA

<213> Artificial Sequence

<220>

<223> Full DNA sequence of grafted heavy chain

<220>

<221>

<400> 31

aagcttgcgg ccaccatgga ctccggattc tctctcggtt tccctggact cattctcaag 60

ggaggcgcgt gtgaggtgca attgggtccag tcaggagccag aggttaagaa gcctgggtct 120

tccgtcaaaag tttcggttaa ggctagcgcc tacagggttca caaattattt gattcatgg 180

gtcaggcagg ctccgggaca aggcctggaa tggatcggttgc gcatatcc cgggaaataac 240

tacgctacat ataggagaaa attccagggc agatgttacga tgaccgcggaa cacccctccaca 300

agcactgtct acatggagct gtcatctctg agatccgagg acaccgcgt gtactattgt 360

actagagaag gctacggtaa ttacggagcc tggttcgccct actggggccca gggtaacccta 420

gtcacagtct cctcagcttc tacaaggggc ccatccgtct tccccctggc gcccgtctcc 480

aggagcacct ccgagagcac agccgcctg ggctgcctgg tcaaggacta cttccccgaa 540

ccgggtgacgg tgcgtggaa ctcaggcgcc ctgaccagcg cggtgcacac cttccccggct 600

AM100788P1

gtcctacagt cctcaggact ctactccctc agcagcgtgg tgaccgtgcc ctccagcagc 660
ttggcacga agacctacac ctgcaacgta gatcacaagc ccagcaacac caaggtggac 720
aagagagttg gtgagaggcc agcacaggga gggaggggtgt ctgctggaag ccaggctcag 780
ccctctgcc tggacgcacc cggctgtgc agccccagcc cagggcagca aggcatgcc 840
catctgtctc ctacccggta ggcctgtac cacccactc atgcccaggag agagggtct 900
ctggatttt ccaccaggct cccggcagcc acaggctgga tgccccatcc ccaggccctg 960
cgcatcagg ggcagggtct gcgcctcagac ctgccaagag ccatatccgg gaggaccctg 1020
ccctgacct aagcccaccc caaaggccaa actctccact ccctcagctc agacaccc 1080
tctcccccata gatctgagta actcccaatc ttctctgtc agagtccaaa tatggtcccc 1140
catgcccacc atgcccaggta aagccaaaccc aggccctgccc ctccagctca aggccggaca 1200
gggccctag agtagcctgc atccaggac agggccccc cgggtgtga cgcattccacc 1260
tccatctctt ctcagcacc tgagttccctg gggggaccat cagttccct gttccccca 1320
aaacccaagg acactctcat gatctcccg accccctgagg tcacgtgcgt ggtgggtggac 1380
gtgagccagg aagaccccgaa ggtccagttc aactggtacg tggatggcgt ggaggtgcat 1440
aatgccaaga caaagccgcg ggaggaggcag ttcaacagca cgtaccgtgt ggtcagcgtc 1500
ctcaccgtcc tgcaccaggaa ctggctgaac ggcaaggagt acaagtcaa ggtctccaac 1560
aaaggccccc cgtccctcat cgagaaaacc atctccaaag ccaaagggtgg gaccacccgg 1620
gtgagggc cacaatggaca gaggtcagct cggccccc tctgcccgg gagtgaccgc 1680
tgtgccaacc tctgtcccta cagggcagcc ccgagagcca caggttaca ccctgcccc 1740
atcccaggag gagatgacca agaaccaggta cagcctgacc tgctggtca aaggcttcta 1800
ccccagcgtac atcggccgtgg agtgggagag caatggcag ccggagaaca actacaagac 1860
cacgcccggcccttcttccct tacagcaggc taaccgtgg 1920
caagagcagg tggcaggagg ggaatgtctt ctcatgtcc gtgtatgtc aggtctgca 1980
caaccactac acacagaaga gcctctccct gtctctgggt aaatgagtgc cagggccggc 2040
aagcccccgcccccggct ctgggggtcg cgcgaggatg ctggcacgt accccgtcta 2100
catactccccccaggatggaaata aagcacccac cactgcccgg gctcgaattc 2160

<210> 32

<211> 94

<212> DNA

<213> Artificial Sequence

<220>

<223> 544gH1 T1

<220>

<221>

AM100788P1

<400> 32

agtgtgaggt gcaattggtc cagtcaggag cagaggtaa gaaggctggt gctccgtca 60
aaggttcggt taaggctagc ggctacaggt tcac 94

<210> 33

<211> 96

<212> DNA

<213> Artificial Sequence

<220>

<223> 544gH1 T2

<220>

<221>

<400> 33

gtggcattaa tcccggaat cagtcacta catataaaag aaatctaaag ggcagagcaa 60
cgctgaccgc ggacacccctcc acaaggactg tctaca 96

<210> 34

<211> 95

<212> DNA

<213> Artificial Sequence

<220>

<223> 544gH1 T3

<220>

<221>

<400> 34

agagaaggct acgtaatta cggagcctgg ttgcctact ggggcccagg tacccatgc 60
acagtctcct cagcttctac aaagggccca agaaaa 95

<210> 35

<211> 94

AM100788P1

<212> DNA

<213> Artificial Sequence

<220>

<223> 544 gH1 B1

<220>

<221>

<400> 35

ggaccaattg cacctcacac tgcactccct tgagaattag tgccaggaac acgagagaga 60
atccgaagtc catggggcg gcaagctttt attc 94

<210> 36

<211> 97

<212> DNA

<213> Artificial Sequence

<220>

<223> 544gH1 B2

<220>

<221>

<400> 36

gattccggg attaatgcca ccgatccatt ccaggcatttgcctgagcc tgcctgaccc 60
aatgaatcca ataatttg aacctgtgc cgctagc 97

<210> 37

<211> 93

<212> DNA

<213> Artificial Sequence

<220>

<223> 544gH1B3

<220>

AM100788P1

<221>

<400> 37

cgttaattacc gttagcccttctt ctatgtacaat agtacactgc ggtgtcctcg gatctcagag 60
atgacagctc catgttagaca gtgcgtgtgg agg 93

<210> 38

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> 544gH1 F1

<220>

<221>

<400> 38

gaataaaaagc ttgccggccac c 21

<210> 39

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> 544gH1 R1

<220>

<221>

<400> 39

tttcttgggc ccctttgtaga ag 22

<210> 40

<211> 87

<212> DNA

AM100788P1

<213> Artificial Sequence

<220>

<223> 544gL1 T1

<220>

<221>

<400> 40

gcttccgggg gtgacgttca agtgacccag agcccatcca gcctgagcgc atctgttagga 60
gaccgggtca ccatcacttg tagatcc 87

<210> 41

<211> 90

<212> DNA

<213> Artificial Sequence

<220>

<223> 544gL1 T2

<220>

<221>

<400> 41

tatctgcaca aaccaggtaa agccccacaa ttgctcatct acggaatctc taacagattt 60
agtggtgtac cagacaggtt cagcggttcc 90

<210> 42

<211> 91

<212> DNA

<213> Artificial Sequence

<220>

<223> 544gL1 T3

<220>

<221>

AM100788P1

<400> 42

agatttcgcc acttattact gtttacaagg tacacatcg ccgtacacat tcggtcaggg 60
tactaaagta gaaatcaaac gtacggcg c 91

<210> 43

<211> 88

<212> DNA

<213> Artificial Sequence

<220>

<223> 544gL1 B1

<220>

<221>

<400> 43

gaacgtcacc ccgggaagca ggaatccaga acaacagaag caccaacagc ctaacaggca 60
acttcatggt ggccgcttcg aatcatcc 88

<210> 44

<211> 88

<212> DNA

<213> Artificial Sequence

<220>

<223> 544gL1 B2

<220>

<221>

<400> 44

ctttaccctgg ttgtgcaga taccaagaca aaaaggtgtt cccataactg ttgcaagac 60
tctgactgg a tctacaagtg atggtgac 88

<210> 45

<211> 90

AM100788P1

<212> DNA

<213> Artificial Sequence

<220>

<223> 544gL1B3

<220>

<221>

<400> 45

aacagtaata agtggcgaaa tcttctggct ggagagacga gatcgtgagg gtgaaatcag 60
taccacttcc ggaaccgcgtg aacctgtctg 90

<210> 46

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> 544gL1 F1

<220>

<221>

<400> 46

ggatgattcg aagccgcccac 20

<210> 47

<211> 21

<212> DNA

<213> Artificial sequence

<220>

<223> 544gL1 R1

<220>

<221>

AM100788P1

<400> 47

gcacggcgta cgtttgattt c

21

<210> 48

<211> 339

<212> DNA

<213> mouse

<220>

<223> DNA sequence of mouse monoclonal 5/44 VL

<220>

<221>

<400> 48

gatgttgtgg tgactcaaac tccactctcc ctgcctgtca gctttggaga tcaagttct 60
atctcttgca ggtcttagtca gagtcttgca aacagttatg ggaacaccctt ttgtcttgg 120
tacctgcaca agcctggcca gtctccacag ctccatct atgggatttca aacagattt 180
tctgggtgc cagacaggtt cactggcagt gggtcaggga cagatttac actcaagatc 240
agcacaataa agcctgagga ctggaaatg tattactgt tacaaggatc acatcagccg 300
tacacgttcg gaggggggac caagctggaa ataaaacgt 339

<210> 49

<211> 363

<212> DNA

<213> mouse

<220>

<223> DNA sequence of mouse monoclonal 5/44 VH

<220>

<221>

<400> 49

gagggtccaaac tgccaggcgtc tgggactgtta ctggcaaggc ctggggcttc cgtgaagatg 60
tctctggcaagg cttctggcta cagggttacc aactactgga ttcaactgggt aaaacagagg 120

AM100788P1

cctggcagg gtctagaatg gattgggtggt attaatccctg gaaataatta tactacgtat 180
aagaggaact tgaaggcCAA ggcccacactg actgcagtca catccGCCAG cactgcctac 240
atggacctca gcagcctgac aagtgaggac tctgcggcttctt attactgtac aagagaggc 300
tatggtaact acggggcctg gtttgcttac tggggccagg ggactcttgtt caccgtctcc 360
tca 363

<210> 50
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> sequence within oligonucleotide primer

<400> 50
gcccGCCacc 9

<210> 51
<211> 101
<212> DNA
<213> Artificial Sequence

<220>
<223> 5' oligonucleotide primer

<400> 51
gcgcgcaagc ttggccac catggacttc ggattcttc tcgtgttccct ggcactcatt 60
ctcaagggag tgcatgttga ggtgcagctc gtcgagtctg g 101